ORI Extramural Program Awards 5 Conferences and 5 Research Projects

ORI awarded ten grant applications through Research on Research Integrity program.   Five Conference grants and three new Phase I Research grants were awarded. Two successful Phase I Research projects from fiscal year 2015 were approved for Phase II funding.

Research Grants: The purpose of the Phase I research grants is to foster innovative approaches to empirical research on societal, organizational, group, and individual factors that affect, both positively and negatively, integrity in research. These grants are awarded in two phases:

> **Phase I**: The objective for Phase I is to establish project merit and feasibility and to generate preliminary data prior to seeking further support for Phase II.

> **Phase II**: Phase II constitutes a separate competition limited to successful Phase I awardees. The objective for Phase II is to build upon results achieved in Phase I. Funding is based on success demonstrated in Phase I, the merit and feasibility of the Phase II proposal, and the availability of funds.

Conference Grants: The conference grants aim to provide an opportunity for the research community to develop multi-disciplinary networks, build on existing evidence-based research, and stimulate innovative approaches to preventing research misconduct and promoting research integrity. ORI is especially interested in supporting conferences that lead to extramural grant applications on research on research integrity and peer-reviewed publications.

<p align="center">Research Conferences on Research Integrity</p>

Promoting Research Integrity in Collaboration with the Asia Pacific Region
University of California, San Diego
Michael Kalichman, Ph.D.

Abstract: The proposed conference, co-hosted by the University of Hong Kong and the University of California, San Diego, will be the first meeting of the newly formed Asian and Pacific Rim Research Integrity (APRI) network to be convened in Asia. Acutely, this meeting is an opportunity to foster research integrity through multi-national awareness, understanding and opportunities for collaboration. For the long-term, this is an essential next step in the creation of a sustainable, robust international partnership that will continue to promote research integrity in the region. For these purposes, the meeting is defined by four objectives:

1. Articulate differences as well as areas of common ground
2. Identify best or recommended practices
3. Identify opportunities for research or collaboration
4. Set an APRI network agenda for coming years.

The key outcome anticipated is to advance the conversation surrounding research integrity among Asian and Pacific Rim nations. This outcome will be evidenced directly through five products: a)

meeting participation; b) satisfaction; c) a white paper; d) publication and dissemination; and e) articulating next steps for the APRI network.

Growing Research Integrity Together (GRIT) Conference
Samuel Gannon, Ed.D.
The Vanderbilt University

Abstract: The goal of this proposal is to build on the successful platform of Vanderbilt University's Growing Research Integrity Together (GRIT) Conferences to define practical, cross-disciplinary, and multi-level practices to foster institutional integrity in research through a 9-month Delphi consensus process, culminating in a 3-day multidisciplinary conference on research administration in team science. The focus of this conference will be on research administrators as a locus of responsibility for institutional integrity in the increasingly complex academic research environment. We will use grant funds to support travel and related costs for 10 multi-disciplinary content experts to serve as Delphi-process panelists and attend the June 2017 GRIT Conference, where they will present the Panel's conclusions and recommendations and engage with the 100+ conference participants in interactive sessions to refine their identified best practices. For the GRIT Conference proposed here, we have planned 3 days of didactic and active learning sessions on key issues in research integrity, exploring contemporary standards of responsible conduct and common causes of research misconduct, including individual, situational, organizational/institutional, structural and cultural factors. Each afternoon we will share the conclusions of the Delphi-process deliberations on institutional obstacles and facilitating factors in research integrity, with formal presentations from the Panel's subject matter experts; each formal presentation will be followed by breakout group discussions and structured feedback using a community engagement and deliberation process to examine, critique, and refine the Delphi panel's conclusions and recommendations and propose means of their implementation.

Leveraging the Research Integrity Symposium to Promote Metacognitive Ethics in Research Education and Training
Ross A. Hickey, JD.
University of Maine System

Abstract: The Research on Research Integrity (RORI) workshop is an innovative concept for assembling researchers, administrators, review board members and other regulatory professionals as a forum, and as a replicable laboratory for studying how ethical decision-making is impacted by social and cognitive processes. The day-long RORI preconference and its broader associated research network, will be integrated with, and will leverage the energy and logistics already in place within the highly successful, Maine Research Integrity Symposium. The aim is to form a network of experts working to shape a new paradigm in ethics research and training centered around metacognitive principles underlying ethical   reasoning. Participants will first directly experience opportunities for decision-making designed to evoke psychological mechanisms known to impact research behavior. Results will then be presented as part of a RIO roundtable for full discussion and analysis, and then integrated into a plan for dissemination and broader development of research and implementation within our network of committed regulatory professionals.

Inter-American Encounter on Scientific Honesty
Sergio Litewka, M.D.
University of Miami

Abstract: The overarching goal of this project is to foster a culture of research integrity in academic institutions in Mexico through the work of an Inter-American Encounter on Scientific Integrity. This conference will bring together upper-level administrators and research educators from national universities with representatives from funders, scientific journals, and the country's growing bioethics community to 1) characterize the types and perceived prevalence of misconduct in Mexico's academic research environment; 2) develop a framework for institutional policies and

procedures to prevent and respond to misconduct and questionable practices in research, particularly in international collaboration; and 3) build a multi-disciplinary network of academic researchers, educators, and administrators actively engaged in new approaches to promoting integrity and preventing misconduct in universities across Mexico. Working with Spanish-speaking research integrity educators from the United States, participants in a pre-conference workshop will develop a provisional definition and typology of misconduct relevant to Mexican universities; estimate the scope and perceived frequency of scientific dishonesty in the country's academic research environment; and set priorities for policy-oriented topics to be addressed in the larger conference. Members of this working group will serve as speakers and discussion group facilitators in a larger, open registration conference that will: address potential policies and procedures on responsible conduct through which academic institutions can support the integrity of their faculty's and students' research, particularly in international collaboration; examine the specific challenges to research integrity that arise in the Mexican context and define the obstacles to effective implementation of academic policy in the national context, and propose ways to overcome those obstacles in their own institutions and across the country. Themes to be addressed include: 1) Defining, preventing, and responding to research misconduct; 2) Standards of authorship and responsible publication practices; 3) Conflicts of interest and their management; 4) Data collection, management, ownership, and sharing; 4) Collaborative research and divergent international policies; and 5) Developing a curriculum on research integrity and responsible conduct of research. The conference will enhance academic leaders' and research educators' awareness of the positive role of policy in promoting research integrity and their readiness to develop a policy framework in their home institutions.

Supporting responsible research organizations: a framework for engaged research managers and administrators
Dade, Aurali, Ph.D.
George Mason University

Abstract: Research scientists cannot effectively deal with the responsible conduct of research in a vacuum. They are in need of solid support from their institutional administrative communities. That support cannot be provided without thoughtful consideration of the issues, practical knowledge of the prevailing rules and regulations, and a vested interest in championing the public trust and safeguarding research subjects' (human and animal) welfare. Research administrators have a front row seat to view how research is conducted and administered in various settings: universities, hospitals, academic medical centers, nonprofit foundations, research institutes, and industry. They are involved at all stages of the research process – from development and pre-award phase though to project closure. As such they can be independent observers to the research process as research occurs. Yet, often they do not realize the integral role they play in maintaining and supporting an institutional environment that supports research integrity and the Responsible Conduct of Research (RCR).

This joint George Mason University and Society of Research Administrators International (SRAI) project will seek to provide a two-day research integrity management intensive workshop (RIMI) that provides research integrity leadership training for administrative leaders and results in developing a guidance document and other resources for research administrators. Course curriculum will deal with RCR core content and explore the complex roles of grants administrators, research subject committee administrators, and research integrity and compliance officers and how they interconnect to support and protect the research enterprise. It will use a mix of teaching and case study instructional methods to highlight to research administrators how they may play a more active role in monitoring RCR issues through the research process.

<h2 style="text-align:center; color:red;">Phase I Research on Research Integrity</h2>

Misconduct Framing and Questionable Research Practices

Bruton, Samuel, Ph.D.
Sacco, Donald, Ph.D.
The University of Southern Mississippi

Abstract: For the past three decades, federal and institutional efforts to promote research integrity have focused largely on research misconduct, standardly defined as fabrication, falsification, and plagiarism (or "FF&P"). These efforts have included the development of educational materials for promoting research integrity as well as the detection and prosecution of those who commit research misconduct. However, there is growing evidence and discussion in science that other ethically questionable research practices – "QRPs" – also may be prevalent, significant, and a malign influence on the overall quality of research. Increasingly, signs suggest that QRPs ultimately may be as damaging to scientific progress as research misconduct, narrowly understood (Ioannidis, 2005). In response, The University of Southern Mississippi is proposing an innovative research project to investigate a potential psychological mechanism associated with QRP endorsement and subsequently, test the efficacy and effectiveness of a promising behavioral intervention designed to stop individuals from engaging in research misconduct, broadly construed.

We intend to explore the possible impact of a well-established psychological process (Tverksky & Kahneman 1981) in a context in which it has been previously explored or discussed. Specifically, we will test how framing research misconduct as FF&P may influence attitudes and behavior towards non-misconduct QRPs. We will then test a novel means of improving researchers' commitment to ethically sound research practices. Goals: We propose to conduct two studies: 1) to determine the impact of a possible framing effect on researchers' favorable attitudes towards QRPs, and 2) to test a behavioral intervention designed to favorably influence this effect. Study 1 will examine whether conceptualizing research misconduct in the strict sense of fabrication, falsification and plagiarism (FF&P) affects attitudes towards QRPs, i.e., deviations from ethically sound research practices other than FF&P that affect the quality of scientific research. Study 2 will test a behavioral intervention designed to promote scientific integrity by means of this framing effect. Objectives: Study 1 participants (academic researchers) will be assigned either to a misconduct framing condition or a control condition. The QRP assessments of both groups will be compared to determine whether misconduct framing leads to endorsement of QRPs. Study 2 participants (academic researchers) will be assigned to a misconduct framing, control, or QRP mitigation condition. Participants' QRP assessments will be analyzed to replicate Study 1 findings and to determine which intervention most reduces QRP endorsement. Outcomes: In Study 1, we predict that participants in the misconduct framing condition will demonstrate more favorable attitudes towards QRPs than those in the control condition. In Study 2, we predict that the results of Study 1 will replicate and that participants in the QRP mitigation condition will demonstrate the least favorable attitudes towards QRPs. Products: Data from these two studies will be used to generate at least two high quality conference presentations (e.g., Association for Psychological Science, Association of Practical and Professional Ethics), and at least two publications in scientific journals of specific (e.g., Science and Engineering Ethics, Accountability in Research) and general interest (e.g., Psychological Science). Results of both studies also will be disseminated electronically by means of the national IRB Forum and APA listservs. Results also will be used to design a Phase II project expected to expand our findings and their impact by developing additional intervention strategies to reduce researchers' perceptions of QRPs as ethically defensible and to increase their perceptions of these practices as detrimental to the advancement of science.

Reproducible Image Processing by Improved Tool Development

Paul A. Thompson, PhD
Sanford Research

Abstract: Reproducibility in science is a current concern for many researchers. Reproducibility refers to the requirement that results of published studies are able to be redone from the source

data. Most types of image processing are not done reproducibly, as most image processing is done interactively in programs like Photoshop, ImageJ, and GIMP (GNU Image Manipulation Program). Due to the interactive processing to produce final images from source, published images are not easily or exactly reproducible, and additionally, researchers have a temptation to engage in inappropriate and sometimes fraudulent image processing.

To make image processing reproducible, a scripted approach to image processing is necessary. Image processing is done interactively, but a "journaling" process (in which the interactive process both processes the images and generates code which can perform the same task) can be used to make the interactive processing transparent, reproducible, and auditable. Allowing scientists to process images interactively while also creating a transparent record will improve reproducibility and decrease fraud.

This proposal presents a plan to incorporate a journaling function into open-source image processing tools such as GIMP and R. GIMP is an open-source tool which features well-defined approaches to revising the tool and making contributions. In the GIMP system, a journaling function will be implemented in one of two ways. Either the main code system will be modified (which is allowed as GIMP is open-source), or an add-in will be created which performs the journaling function. R is a system for general information processing, and includes tools for GUI creation and image processing. In the R approach, the Shine GUI (graphical user interface) builder will be used to create a GUI which can both modify images (using ImageMagick code) interactively, and save the ImageMagick code as the modification is performed. Tools will be examined and produced, a code system for scripted image processing will be selected, and the approach will be tested on images prepared for publication as scientific images.

Image editors with a journaling function will be a strong deterrent to image fraud By processing images with a tool which shows a clear track of all processes, scientists processing images will use appropriate methods, and fraud will be deterred. Transparency is the most effective deterrence to fraud. In addition, as fully disclosed modifications of images will be done, future changes in image processing can be incorporated.

The Value of Statistical Tools to Detect Data Fabrication
Chris HJ Hartgerink
Stichting Katholieke Universiteit Brabant

Abstract: We aim to investigate how statistical tools can help detect potential data fabrication in the social- and medical sciences. In this proposal we outline three projects to assess the value of such statistical tools to detect potential data fabrication and make the first steps in order to apply them automatically to detect data anomalies, potentially due to data fabrication. In Project 1, we examine the performance of statistical methods to detect data fabrication in a mixture of genuine and fabricated data sets, where the fabricated data sets are generated by actual researchers who participate in our study. We also interview these researchers in order to investigate, in Project 2, different data fabrication characteristics and whether data generated with certain characteristics are better detected with current statistical tools than others. In Project 3 we use software to semi-automatically screen research articles to detect data anomalies that are potentially due to fabrication, and develop and test new software forming the basis for automated screening of research articles for data anomalies, potentially due to data fabrication, in the future.

Phase II Research on Research Integrity

Bioethical Issues in Biostatistical Consulting (BIBC): A Phase II Study
Min Qi Wang, Ph.D.
University of Maryland, College Park

Abstract: Following the successful implementation of the phase I study, the overall purpose of this phase II study is, in collaboration with the American Statistical Association (ASA), to conduct a full-fledged study to investigate the frequency and relative severity of a broad array of bioethical violations requests that are presented to U.S. biostatisticians by investigators seeking biostatistical consults. A 35-item Bioethical Issues in Biostatistical Consulting Questionnaire (BIBC Q), developed, construct validated and pretested within an NIH/NIDR-funded Oral Health Disparities Center (U54 DE14257-08), along with a short demographic data form, will be administered to a random sample of U.S. biostatisticians. There are four aims to be achieved: Aim 1: to establish the prevalence of 35 bioethical violation requests related to data analysis practices as broached to biostatisticians by investigators during biostatistical consultations. Aim 2: to determine the relative severity level, as deemed by biostatisticians, of each of those 35 'biostatistical consult' bioethical violation requests. Aim 3: to investigate the association of the response patterns to the 35 bioethical violation requests from investigators by: a) work experience, i.e., age and career length as a biostatistician; b) gender; c) race (White, Asian, Black/Hispanic, and Other race); d) type of credentials/degrees; e) broad employer type; and f) field of application (e.g., public health, health care, medical, pharmaceutical, etc.). Aim 4: to disseminate the findings including, but not limited to, the summary reports to the American Statistical Association (ASA), educational and training documents to ASA members via ASA web and the ASA online user forum. The dissemination will also include national conference presentations and peer-reviewed publications. To achieve these goals, 400 ASA members representing statisticians working for the academia, government, and industry will be surveyed. The data will be analyzed and findings presented at national conferences. The educational and training materials will be shared with ASA.

Perceptions of Scientific Misconduct in the Natural and Social Sciences

Kristy Holtfreter, Ph.D.
Arizona State University

Abstract: Goals: This study assesses perceptions of various forms of scientific misconduct (e.g., data fabrication, falsifying findings, & plagiarism) from a representative sample of tenured and tenure-track university faculty in the United States. Specifically, this study examines researchers' perceptions of the prevalence, seriousness, causes, and prevention of scientific misconduct. Objectives: This phase (Phase 2) entails the continuation of data collection; mail survey data will be collected to compliment the online survey data. The sample consists of researchers employed at the top 100 research universities in the United States from three broad scientific fields—natural, social, and applied sciences. The analyses will use high-order confirmatory factor models to develop a multi-dimensional scientific misconduct scale with strong construct validity. The analyses will also assess what factors are thought to promote scientific misconduct in a multivariate regression context. This portion of the study will make use of variables drawn from a number of criminological theories that have been empirically shown to explain unethical and fraudulent behavior. Empirical attention will also be directed toward the utility of potential prevention efforts. Outcomes: The study will produce an empirically-validated scale that may be used by future investigators. Importantly, two dimensions of the scale—resource mismanagement and disobeying institutional authority—reflect forms of misconduct that have yet to be empirically investigated. Finally, the results will be weighted to represent the population of interest, thereby reflecting the perceived prevalence and seriousness of scientific misconduct in the eyes of researchers. Products: In addition to reports required by ORI, the data obtained for this project will be used to produce several high-quality conference papers, multiple peer-reviewed publications in scientific journals of general interest. The results will be disseminated to the general public via the media and shared electronically.

Source URL: *https://ori.hhs.gov/blog/ori-extramural-program-awards-5-conferences-and-5-research-projects*